

1 **Q. With reference to CA-65-NLH, please provide the counterpart data pertaining to**
2 **Newfoundland Power Inc.**

3
4 **A. General**

5 Newfoundland Power provides electrical service to three distinct categories of customers:
6 domestic; general service; and, street and area lighting. In 2005, domestic accounted for
7 60% of total energy sales while general service and street and area lighting represent
8 39% and 1%, respectively.
9

10 The domestic category Rate # 1.1 primarily refers to residential dwellings such as single
11 detached homes, single attached homes, apartments and mobile homes. The category
12 also includes non-residential services such as cottages, personal use garages and other
13 meter services that qualify for the domestic rate category. Residential customers use
14 electricity primarily for space and water heating, and the operation of miscellaneous
15 appliances and lighting.
16

17 The general service category primarily refers to commercial, institutional and industrial
18 customers. While the domestic category represents a homogeneous group of customers,
19 the general service category represent a very diverse group whose activities include trade,
20 finance, real estate, public administration, health, education, commercial services,
21 transportation, manufacturing, mining, fishing, forestry and construction. From a rate
22 class perspective the general service category is divided into Rate #2.1 0 - 10 kW, Rate
23 #2.2 10 - 100 kW (110 kVA), Rate #2.3 110 kVA (100 kW) – 1000 kVA and Rate #2.4
24 1000 kVA and Over.
25

26 In 2005, approximately 85% of general service sales were to customers in the service
27 sector while only 15% were in the goods producing sector. General service customers
28 use electricity for space heating and cooling, water heating, lighting and various motor
29 loads, etc.
30

31 The street and area lighting category refers to lighting fixtures which have been installed
32 in public areas in municipalities. It also includes lighting fixtures that have been installed
33 at the request of general service and domestic customers to provide area lighting on
34 private property.
35

36 The overall approach to forecasting energy sales in each category is dependent on the
37 overall size of the category. In categories where there is a large number of customers
38 with relatively low usage, a customer/average use approach is employed. In categories
39 where there are a small number of customers but energy usage is high, customers' energy
40 requirements are forecast on an individual basis.
41

42 **Domestic**

43 Given the large number of customers in domestic Rate #1.1 category energy sales are
44 forecast using a customer/average use approach. The forecast number of customers is
45 based on the number of housing starts, connection of non-residential services and service
46 disconnections. Housing start information is provided by the Conference Board of

Canada and Canada Mortgage and Housing Corporation. Connection of non-residential services is based on historical pattern that is adjusted to reflect the expected development of cottage areas. Disconnections are based on historical patterns.

Domestic average use is forecast using an end-use/econometric model. Specifically the model incorporates the market share for electric space heating, the marginal price of electricity in the current year, the marginal price of electricity in the previous year, and personal disposable income per customer. The market share for electric space heating is based on the percent of new customers installing electric space heating, conversion of existing customers' fuel sources, and disconnections. A regression equation is used to quantify the relationship between changes in the relative price of competing fuels and its impact on the installation of electric space heating in new homes and conversion between fuels.

Personal disposable income data is provided by the Conference Board of Canada, while electricity price forecasts are developed based on information available internally and provided by Newfoundland and Labrador Hydro. Changes in furnace oil prices are assumed to be consistent with change in No. 6 fuel costs used in the calculation of the Rate Stabilization Plan adjustments.

Domestic energy sales are calculated by multiplying the forecast number of customers and the forecast average use.

General Service

For purposes of forecasting, the general service category is subdivided into two groups based on load: small 0 – 100 kW (110 kVA); and, large 110 kVA (100 kW) and Over.

Small

Given the relatively large number of customers in this group, energy sales are forecast using a customer/average use approach. This group of customers is primarily responsible for providing goods and services to domestic customers. Therefore, the number of customers in the small general service group is highly correlated to the number of domestic customers. Using a regression equation this relationship is quantified and used for forecasting the number of small general service customers.

Small general service average use is forecast using an econometric model. Specifically the model incorporates the Gross Domestic Product for the service sector per small general service customer and the average price of electricity in the current year. Gross Domestic Product for the service sector is provided by the Conference Board of Canada, while electricity price forecasts are developed based on information available internally and provided by Newfoundland and Labrador Hydro.

Small general service energy sales are calculated by multiplying the forecast number of customers and the forecast average use.

Large

Given the smaller number of customers in this group, energy sales are forecast on an individual customer basis. The methodology used in forecasting energy sales for this group is based on informed opinion. The primary source of information is Newfoundland Power's Large Customer Survey. Each year, surveys requesting information with respect to future load requirements are distributed to over 150 customers representing approximately 600 accounts. Information gathered from within Newfoundland Power, as well as from the St. John's Board of Trade, various trade organizations, and the provincial and federal governments, is also incorporated into the forecast. For this customer group, a degree of judgement is exercised in preparing the forecast.

Street and Area Lighting

Street and area lighting energy sales are directly related to the increase in the number of fixtures required to meet the lighting needs of both municipalities and unincorporated communities.

Given the nature of this category an end use forecasting methodology is employed. The number of street lighting fixtures is directly related to the number of domestic customers. Analysis of historical pattern indicates that, on average, one street lighting fixture is required for the addition of 4.5 domestic customers. This information is used to forecast the number of street lighting fixtures in service.

The forecast of the number of fixtures is further broken down between the type and wattage of fixture. At the end of 2005, Newfoundland Power had approximately 55,000 fixtures installed, with mercury vapour fixtures accounting for 16% of these fixtures and high pressure sodium fixtures accounting for the remainder. The wattage of the fixtures can range from 100W to 400W, with approximately 85% of fixtures being 175W or less. Using historical patterns for conversions of mercury vapour to high pressure sodium and the installation of new fixtures, a forecast of fixtures by type and wattage size is prepared.

The street and area lighting energy sales forecast is determined by multiplying the forecast quantity of fixtures by the amount of electricity consumed for each fixture type and wattage.

Total energy sales are calculated by adding domestic, general service, and street and area lighting sales.

Produced, Purchased and Wheeled

Newfoundland Power's total produced, purchased and wheeled energy represents the total energy sales, company use, system losses and energy wheeled to Newfoundland and Labrador Hydro over Newfoundland Power's transmission/distribution system.

1 Company use includes all electricity consumed in facilities owned by Newfoundland
2 Power and used in the delivery of service to customers. These facilities include office
3 buildings, warehouses, substations, etc. The forecast of company use is based on
4 information gathered from each of Newfoundland Power's operating areas with respect
5 to the operation of those facilities.

6
7 "System losses" refers to energy that is lost during the transmission and distribution of
8 energy between the source of supply and delivery to the customer. When energy is sent
9 over the system, resistance in the conductor results in a build-up of heat and a resultant
10 loss of energy. System losses are based on historical information and are forecast to be
11 approximately 5.3% of total produced and purchased power.

12
13 Newfoundland and Labrador Hydro provides Newfoundland Power with an annual
14 forecast of energy and demand requirements for each wheeling point on the system.

15
16 Purchased power is calculated by subtracting Newfoundland Power's forecast hydraulic
17 production from the forecast of total produced and purchased power. Newfoundland
18 Power's hydraulic production is based on the Water Management Study – Hydrology
19 Update prepared by SGE Acres Limited in 2005. Each year, normal production is
20 adjusted to reflect plant availability and any modifications to plants that may impact
21 production.

22 23 **Native Peak**

24 Newfoundland Power's native peak is determined using a load factor based methodology.
25 The load factor used in the calculation is the average of 15 years of normalized annual
26 load factors. Native peak is calculated by applying the average load factor to total
27 produced and purchased power.

28
29 A copy of Newfoundland Power's Customer, Energy and Demand Forecast which forms
30 the basis of the Hydro forecast sales to Newfoundland Power included in Hydro's
31 Application dated August 3 2006 is provided in Attachment A.

**NEWFOUNDLAND POWER INC.
CUSTOMER AND ENERGY SALES FORECAST
TOTAL COMPANY**

		FORECAST					
CUSTOMERS		2006	2007	2008	2009	2010	2011
DOMESTIC	1.1	198,600	200,542	202,393	204,169	205,900	207,514
GENERAL SERVICE							
0-10 kW	2.1	12,077	12,099	12,119	12,135	12,150	12,158
10-100 kW (110 kVA)	2.2	8,203	8,287	8,368	8,449	8,528	8,609
110-1000 kVA	2.3	1,026	1,036	1,047	1,058	1,071	1,083
1000 kVA and Over	2.4	64	64	65	67	67	67
TOTAL GEN. SERVICE		21,370	21,486	21,599	21,709	21,816	21,917
STREET & AREA LIGHTING	4.1	9,709	9,759	9,808	9,853	9,894	9,930
TOTAL CUSTOMERS		229,679	231,787	233,800	235,731	237,610	239,361
% INCREASE		1.0%	0.9%	0.9%	0.8%	0.8%	0.7%

		FORECAST					
ENERGY SALES (GWH)		2006	2007	2008	2009	2010	2011
DOMESTIC	1.1	2,997.9	3,011.6	3,043.7	3,090.0	3,145.9	3,196.1
GENERAL SERVICE							
0-10 kW	2.1	94.8	94.3	96.3	97.8	99.9	101.1
10-100 kW (110 kVA)	2.2	614.8	613.5	624.9	633.4	643.4	651.9
110-1000 kVA	2.3	865.9	873.8	886.4	894.7	907.5	922.0
1000 kVA and Over	2.4	420.3	422.9	425.0	434.9	445.8	464.9
TOTAL GEN. SERVICE		1,995.8	2,004.5	2,032.6	2,060.8	2,096.6	2,139.9
STREET & AREA LIGHTING	4.1	36.1	36.2	36.3	36.4	36.6	36.8
ENERGY SALES		5,029.8	5,052.3	5,112.6	5,187.2	5,279.1	5,372.8
COMPANY USE		11.8	11.8	11.8	11.8	11.8	11.8
LOSSES		282.2	281.3	284.0	291.6	294.5	299.9
PRODUCED & PURCHASED		5,323.8	5,345.4	5,408.4	5,490.6	5,585.4	5,684.5
WHEELED		62.4	68.4	69.0	69.6	70.2	70.7
PRODUCED, PURCHASED & WHEELED		5,386.2	5,413.8	5,477.4	5,560.2	5,655.6	5,755.2
% INCREASE		0.5%	0.5%	1.2%	1.5%	1.7%	1.8%

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NEWFOUNDLAND POWER INC. ENERGY & DEMAND FORECAST 2006 - 2011

YEAR	PRODUCED PURCHASED & WHEELED	TOTAL WHEELED	TOTAL CURTAILED	TOTAL PRODUCED & PURCHASED			NP PRODUCED		TOTAL PURCHASED	
	(1) Energy (GWh)	Energy (GWh)	(2,3) At Native Peak (MW)	Energy (GWh)	(3,4) Native Peak (MW)	(5) Load Factor	(6) Energy (GWh)	(3,7) At Native Peak (MW)	Energy (GWh)	(3) At Native Peak (MW)
2006	5,386.2	62.4	11.5	5,323.8	1,203.5	50.02%	417.3	82.0	4,906.5	1,121.5
2007	5,413.8	68.4	11.5	5,345.4	1,208.4	50.02%	381.4	84.5	4,964.0	1,123.9
2008	5,477.4	69.0	11.5	5,408.4	1,219.4	50.02%	425.8	84.5	4,982.6	1,134.9
2009	5,560.2	69.6	11.5	5,490.6	1,241.6	50.02%	425.8	84.5	5,064.8	1,157.1
2010	5,655.6	70.2	11.5	5,585.4	1,263.2	50.02%	425.8	84.5	5,159.6	1,178.7
2011	5,755.2	70.7	11.5	5,684.5	1,285.8	50.02%	425.8	84.5	5,258.7	1,201.3

NOTES:

1. Produced, Purchased and Wheeled is based on the System Energy Forecast dated April 21, 2006.
2. The Total Curtailed Demand represents the amount available through the Curtailable Service Option and various Company facilities.
3. Native Peak refers to the maximum purchased and produced demand during the winter season at the end of the current year.
4. Newfoundland Power Native Peak is calculated by applying the Load Factor to Produced & Purchased energy less Total Curtailable Demand.
5. Load Factor is based on an average of 15 year historical (normalized) load factors.
6. Average water year for the forecast period is 419.6 GWh adjusted for forecast plant availability and efficiency improvements. The reduction in 2007 is related to the refurbishment of the Rattling Brook Hydro Plant. The refurbishment of the plant will result in an increase in production of 6.2 GWh starting in 2008.
7. Assumes hydro capacity on at time of peak is 82.0 MW in 2006 and 84.5 MW for 2007 and beyond. The increase in 2007 is related to the refurbishment of the Rattling Brook Hydro Plant which is scheduled to be completed in late 2007.

**NEWFOUNDLAND POWER INC.
ENERGY & DEMAND MONTHLY BREAKDOWN
2006 - 2011**

MONTH	2006		2007		2008		2009		2010		2011	
	Purchased Energy (1) GWh	NP Native Peak (2) MW	Purchased Energy (1) GWh	NP Native Peak (2) MW	Purchased Energy (1) GWh	NP Native Peak (2) MW	Purchased Energy (1) GWh	NP Native Peak (2) MW	Purchased Energy (1) GWh	NP Native Peak (2) MW	Purchased Energy (1) GWh	NP Native Peak (2) MW
JAN.	573.9	1,166.09	574.8	1,203.50	579.7	1,208.40	591.2	1,219.40	602.0	1,241.60	613.3	1,263.20
FEB.	517.8	1,160.61	518.6	1,197.47	542.6	1,202.30	534.0	1,213.14	545.9	1,235.02	557.8	1,256.31
MAR.	523.2	1,059.87	524.7	1,093.54	530.5	1,097.95	539.9	1,107.85	552.3	1,127.83	563.5	1,147.27
APR.	426.0	959.05	430.9	962.92	431.3	971.61	440.7	989.13	449.8	1,006.18	461.2	1,024.02
MAY	356.3	848.00	366.6	851.42	361.7	859.10	369.4	874.60	378.0	889.67	385.8	905.45
JUNE	298.4	728.99	303.2	731.93	302.5	738.53	309.8	751.85	315.9	764.81	323.6	778.37
JULY	289.8	596.39	297.2	598.80	293.4	604.20	300.0	615.10	305.4	625.70	311.8	636.79
AUG.	285.6	569.13	290.4	571.43	287.9	576.58	296.0	586.98	298.8	597.10	304.8	607.68
SEPT.	298.1	649.68	302.8	652.30	299.8	658.18	306.3	670.05	312.6	681.60	318.3	693.68
OCT.	358.8	827.13	365.7	830.47	362.9	837.95	369.5	853.07	375.1	867.77	382.0	883.16
NOV.	438.0	993.92	445.3	997.93	440.2	1,006.93	450.5	1,025.09	456.2	1,042.76	464.3	1,061.24
DEC.	540.6	1,175.82	543.8	1,180.56	550.1	1,191.21	557.5	1,212.69	567.6	1,233.60	572.3	1,255.47
TOTAL	4,906.5		4,964.0		4,982.6		5,064.8		5,159.6		5,258.7	

NOTES:

1. Monthly Purchased Energy is based on the produced and purchased breakdown analysis less Newfoundland Power's monthly production. Purchased Energy for 2006 is based on three months weather adjusted actuals and nine months forecast data.
2. Monthly peaks were derived by applying average percentage splits to the Newfoundland Power Native Winter season peak forecast. Average percentage splits are based on actual historic monthly Newfoundland Power Native Peaks. The Newfoundland Power Native peak for 2006 is based on the January 23, 2006 weather adjusted peak.